



## NEW MILLENNIUM PROGRAM

# Technology Partnerships and Access to Space

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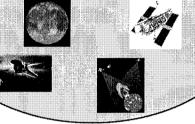
August 23, 2000



#### **Program Attributes**



Multi Theme Technology Benefits



• Broad user community

Technology -Focused Projects

Phase A Phase I

Technology - Focused Project Formulation Process

Ensures focus on reconology needs of future science missions
 NOT science return from NMP flights

Breakthrough
Technologies Requiring
Flight Validation

Phuse A

- Open competitive technology calls
- Strong rationale for flight validation

Partnership / Shared Launches



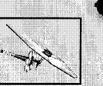
- Increases launch opportunity
- Reduces "low tech" elements' costs
- HQ's help (commercial, government)

Revitalized
Program
Architecture

System / Subsystem
Approaches with Frequent







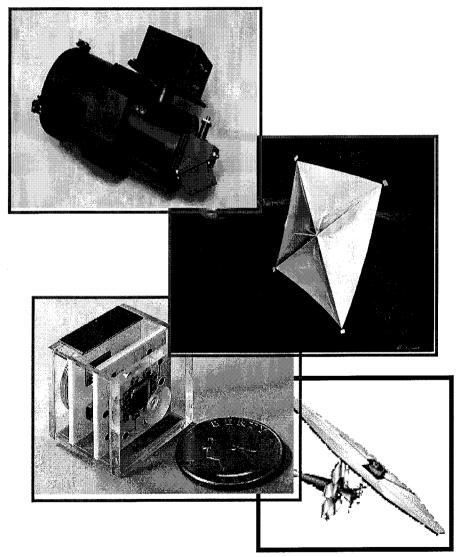
- Maximizes cost effectiveness of validation approach
- Balanced portfolio
- Flexible / adaptive / resilient

08-23-00-Tech Partnr Access



#### **Sub-System Technology Validation**





- Yearly flight opportunities for several sub-systems as stand-alone units on flights-of-opportunity or on a space technology carrier
- NASA hosts carrier flight on regular basis
- Flights of opportunity (FOO)
  - Other NASA missions, Shuttle,DoD & commercial flights



#### **NMP Subsystem Validation Partnerships**



#### **Technology development partnerships:**

- Funds other than NMP funds that can be invested in the development of the candidate technology to contribute to the production the flight article to be validated
  - Technology Provider combines funding from sources other than NMP with NMP funds to produce the article for flight validation
  - Two or more technology providers team to leverage their funds to add to NMP funds to provide article for flight validation

#### Access to space partnerships:

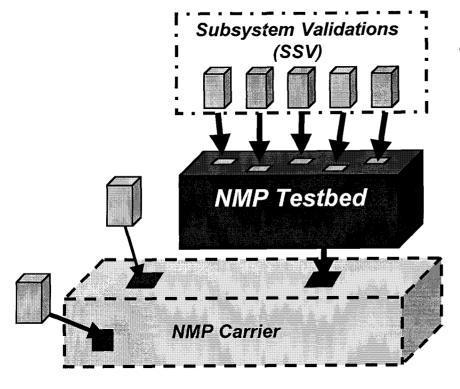
- Funds other than NMP funds that can be directed to defraying costs of piggyback or secondary launch for technology subsystem
  - Technology provider secures agreement for commitment of excess launch capacity to NMP subsystem accommodation where NMP pays the integration cost
  - NMP provides access to space on NM carrier in exchange for accommodation on partner's carrier



NMP-funded

#### Testbeds for Sub-system Technology Validations





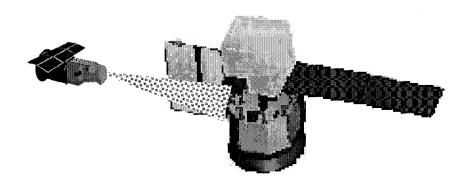
Not NMP-funded

- Definition: Common support hardware & software to validate several subsystems or components
  - Facilitates harvesting subsystems
     & components developed in & outside space science
  - Outside space science = Industry, other NASA technology development programs, other government agencies



### Example of Possible Partnership/Access-to-Space Opportunity





- XSS11 is an Air Force Research Laboratory mission for technology demonstration
  - target launch in '04
- Strawman mission concept includes a regular-technology main spacecraft and a high-technology microspacecraft
- Discussions conducted with AFRL on possible partnership
  - AFRL expressed primary interest in autonomous rendezvous technologies
  - NMP requested possibility of accommodating other technologies
  - AFRL indicated willingness to examine NMP technology needs for areas of mutual interest